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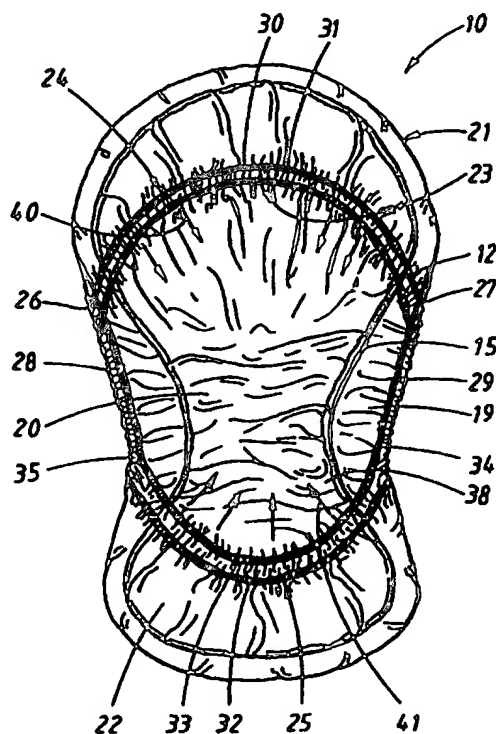
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(54) Title: DISPOSABLE LIQUID-ABSORBENT ARTICLE

(57) Abstract

Disposable liquid-absorbent article, such as a diaper (10), an incontinence guard, a sanitary napkin or the like. When in use, the liquid-absorbent article according to the invention is imparted a highly efficient collecting shape. This is achieved by means of pre-stressed, curved elastic members (23) which extend with at least one essentially continuously curved portion (24, 25) across at least one region of the absorbent body (12) of the article. When bending of the article is initiated by the user, the elastic members exert tensile forces which deform the article in order to form, in relation to the plane of the article, a transverse basin wall along the curved elastic portions. On the side of at least one curved portion of an elastic member against which said tensile forces are acting, the article is designed with a stiffer portion than on the other side of said curved portion.



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TITLE: Disposable liquid-absorbent article

TECHNICAL FIELD:

10 The present invention relates to a disposable liquid-absorbent article according to the preamble of claim 1.

BACKGROUND OF THE INVENTION:

15 Liquid-absorbent articles, for example diapers are known which are provided with elastic in order to impart shape to the article when in use. In the majority of such articles, the main purpose of the elastic is to form a raised edge which seals against the legs of the wearer. Hitherto known solutions have, however, a limited capacity in terms of the
20 ability to locally collect and enclose larger volumes of, for example, faeces and urine.

A pair of training pants is known from for example US 3,680,003, in which leg elastic forms an encompassing
25 sleeve around the legs. When the article is in a folded-out condition, the elastic is completely rectilinear and extends essentially to the side of the absorbent body in order to permit the edge of the diaper to seal against the legs when in use.

30 US 4,050,462 relates to a diaper with elastic, which in the flat condition of the diaper extends rectilinearly and is intended to contract the crotch area of the diaper and increase the surface and the volume per unit of length of
35 the absorbent body by means of the formation of pleats in order to obtain an enhanced absorption effect.

WO 88/00010 discloses a diaper with principally rectilinear elastic forming a V-shaped configuration. The elastic extends inwards across the absorbent body of the diaper and demarcates a region which is deformed by the contracting action of the elastics. The extension of the elastic with rectilinear portions mainly achieves a pleating of the article as a whole as the elastic strives to reduce the total length of the article. A region enclosed between a number of rectilinear elastic portions is imparted a bowl-like shape through the contraction of the elastic portions.

US 4,801,345 discloses a method for the manufacture of diapers. The method involves application of elastic along the crotch portion of the diaper. In this manner, the elastic extends concavely outwards along the long edges of the diaper and totally to the side of the absorbent body. The purpose of the elastic is primarily to achieve a tight connection of the edge of the diaper against the legs of the wearer. A further effect will be a certain contraction and pleating of the absorbent body across the crotch portion.

EP 0,219,326 discloses a diaper with elastic which extends completely rectilinearly in a flat condition of the diaper and totally to the side of the absorbent body. Elastic is arranged along the outer edge of the diaper on both sides of the crotch portion and in a trimming on both sides of the absorbent body. In addition to maintaining an erect, sealing edge by means of the trimming, the elastic ensures a certain pleating and contraction of the absorbent body.

GB 2,234,157 relates to a pair of training pants with elastic which extends around the waistband of the training pants and along the edge of the crotch portion against the legs of the wearer, as well as across the crotch portion. The elastic which encompasses the legs reduces the risk of

leakage, while the elastic across the crotch portion is merely arranged so as to enable a rational application of continuous elastic threads. The construction and the method are especially adapted to diapers in the form of training pants.

SUMMARY OF THE INVENTION:

The object of present invention is to provide a disposable liquid-absorbent article which in use adopts a very efficient collecting shape.

Since diapers with leg elastic according to US 3,860,003 became common during the sixties, an immense number of patent applications regarding elastic in diapers has been filed around the world.

Elastic has been applied longitudinally and/or transversally of the diaper in order to form a 3-dimensional shape or leakage barriers.

Elastic has also been applied in a curve shape along the edge portions of the cover outside the side edges of the absorbent body, which curve shape has been chosen for better adaptation to the body shape of the user.

Thanks to the present invention has been created a completely novel elastic effect which imparts immense advantages to the product in an particularly simple way.

Said object and the novel effect are achieved by an article in accordance with the present invention, the features of which are evident from claim 1.

BRIEF DESCRIPTION OF THE DRAWINGS:

The invention will be described in the following by means of embodiments and with reference to the attached drawings,

in which:

- 5 Fig. 1 is a plan view of an article according to the invention according to a first embodiment in the form of a diaper,
- Fig. 2 is a perspective view of the diaper according to Fig. 1, essentially in its use position,
- 10 Fig. 3 is a perspective view of the article according to the invention in a second embodiment, in its use position,
- Fig. 4 is a longitudinal section through the diaper in a flat, stretched-out condition, along the line IV-IV in Fig. 7,
- 15 Fig. 5 is a corresponding longitudinal section through the diaper, in its use position, along the line V-V in Fig. 2, while
- 20 Fig. 6 is a transversal section through the diaper, in its use position, along the line VI-VI in Fig. 2,
- 25 Fig. 7-9 show schematically further embodiments of the diaper, and

Fig. 10-12 show three further advantageous embodiments.

30 DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS:

An article that is particularly representative of the invention has been chosen as an embodiment. It is an article for collection of liquid and faeces, namely an incontinence diaper, i.e. a diaper for adults and not for

35 babies.

As is evident from the first embodiment, see primarily Figs. 1, 2 and 4, the diaper 10 is constituted by a cover 11, enclosing a core in the form of an absorbent body 12. In a flat, stretched-out condition, shown in Fig. 4, the core exhibits a relatively flat main form with two main surfaces facing away from each other, namely an inner side 13, intended to face inwards towards the user and an outer side 14, intended to face outwards. Moreover the absorbent body 12 exhibits an encompassing, rounded edge portion 15, imparting to the absorbent body 12, an appropriate, anatomically adapted outline to the body of the user. The absorbent body 12 is provided with a central portion 16 which is stiffer than the rest of the absorbent body. This has been achieved by means of the absorbent body having a higher basis weight in the central portion 16 than the rest of the absorbent body. The central portion may be thicker than the rest of the absorbent layer but has, in the shown embodiment, the same thickness but is more tightly compressed in the central portion 16.

In the shown example the cover 11 is constituted of two layers 17, 18, with mutually different properties, located against, respectively the inner side 13 and the outer side 14 of the absorbent body and closing the absorbent body by means of the two layers being interconnected outside the edge portion 15 of the absorbent body, forming a flange-like encompassing edge portion 19 for the diaper as a whole. In the edge portion 19 the two layers 17, 18 are placed in close contact with each other and are mutually interconnected by means of a binding agent.

The specific components used for forming the shown diaper may be any components commonly used for such purposes. The layer 17 which is applied on the inner side 13 may be any soft, flexible, liquid-permeable material, such as a non-woven or a soft, perforated plastic film of polyethylene or

the like. The layer 18 on the outer side 14 is of a liquid-impermeable material, such as a thin (e.g. 20 μ) plastic film of polyethylene, polypropylene, polyvinyl-chloride or the like. The absorbent body 12 may consist of cellulose fibres, different types of superabsorbing materials etc.

As is most clearly evident from Fig. 1, the diaper in the shown example has a main form of an asymmetrical hourglass or a peanut shell with a waist or a crotch portion 20, which expands in one direction towards a rear portion 21 and a front portion 22, which portions are intended to connect with the corresponding portions of the wearer when in use. The absorbent body 12 tapers to a larger extent than the outline of the diaper 10 which provides a larger width to the edge portion 19 of the diaper on a level with the crotch portion 20. In order to impart to the diaper 10 its appropriate shape when in use, the diaper 10 is provided with contracting elastic 23 arranged in a configuration and location specific for the invention. Appropriate shape is such a shape that the diaper, when in use, may contain large amounts of liquid and solid excreta from the body, partly by means of absorption and partly by retention of the products by means of its shape, be they urine, blood or other body-fluids or faeces. For this purpose the elastic 23 is at least partially arranged with arcuately curved portions 24, 25 extending across the absorbent body 12. In the shown example, two arcuately continuously curved elastic portions 24, 25 are arranged, which through edge elastic (see below) principally meet at their ends at two intersection sites 26, 27 in the proximity of the long-edge portions 28, 29 of the diaper.

The elastic 23 is connected to at least one of the layers 17, 18 in the cover 11 and is in the first embodiment connected to the liquid-permeable layer 17. In the shown example, the elastic is arranged on the inside of the layer

17, i.e. between the absorbent body 12 and the layer, but may of course as an alternative be applied on the outer side of the layer. The elastic consists of elongate elastic members, for example, having a thread or band-shaped elastic core of a highly elastic material, for example rubber, and a wound thread cover which may be bonded by means of a binding agent thus enabling anchoring of the elastic core in the layer 17 of the diaper, at the same time as the elastic core permits elastic movements. The elastic strives to contract and the elastic threads or bands are for this purpose pre-stressed, i.e. stretched to a certain extent before anchoring occurs in the layer 17 of the diaper. The anchoring is performed by means of a binding agent 30 which is applied in certain parts of the extension of the elastic or in its total extension. In the shown example each of the arcuately curved portions 24, 25 is arranged with double elastic, i.e. with two adjacently extending elastic members 30, 31, 32, 33, of which one elastic member 33 in one of the curved portions 25 turns into edge elastic 34, 35, i.e. extends along a portion of both long-edges edges 28, 29 of the diaper to the intersection site 26, 27 with the elastic members 30, 31 of the opposite curved portion 24. In the shown example, the edge elastic 34, 35 extends essentially rectilinearly but may also have an arcuate, but weak curvature, i.e. with a large radius of curvature.

The diaper is shown in Fig. 1 essentially in a plan view, i.e. out-stretched, but in such a condition that the contracting action of the elastic is visible.

Fig. 2 shows the diaper shaped into a condition for use. This shape is formed as soon as handling of the diaper commences, which effect is described more closely below. As long as the diaper is flat, essentially no shaping takes place except that the absorbent body is somewhat

compressed. The desired shape may also be forcibly initiated with the hand, if the region 38 located inside the elastic is pressed down when bending the diaper, before the diaper is applied in the use position. Through the striving of the arcuate elastic to contract and by means of its anchoring to one layer 17 of the cover together with the connection of the layer to the absorbent core, the elastic, in cooperation with the deformability properties of the cover and of the absorbent body 12, has created, in relation to the flat inside of the article, essentially perpendicular basin walls 39'. The cover portions outside the side edges of the absorbent body in the crotch area of the article form the basin walls 39'' which together with the basin walls 39'' encompass a basin-like space.

Fig. 3 shows a view corresponding to Fig. 2 of another embodiment of the diaper, in which the elastic, here referred to as 23', has the same configuration as in the first embodiment but is connected to the outer layer 18 of the cover, i.e. the liquid-impermeable layer. Also in this case, the elastic threads or bands may preferably be applied by means of a binding agent on the inside of the layer 18. This in turn must be connected by its inside to the absorbent body. The corresponding appropriate basin is essentially achieved also in this embodiment. Here it is of particular importance that the forces acting on the diaper by means of the arcuate portions of the elastic are assisted by external forces, before these elastic portions give the deformation of the diaper required for the formation of the vertical basin walls.

The wider part of the edge portion 19, located right in front of the crotch portion 20, is raised in both embodiments, due to the striving of the elastic to contract, i.e. to reduce its length. When the diaper is in use, the raised longitudinal edges 36, 37 seek to bear on

the body of the bearer, in practice the inside of the thighs, thereby forming an extremely liquid-impermeable connection against the body. Especially in the first embodiment according to Fig. 2 pronounced essentially vertical basin walls arise inside the curved elastic portions. Moreover, a certain pleating also arises laterally through the contraction of the layer by the elastic. The arcuate basin walls may, as mentioned above, be essentially perpendicular in relation to a line along the basically flat bottom of the basin. The arcuate basin walls may, through choice of the pre-stressing of the elastic and the inclination to deform of the absorbent body, form an acute or an obtuse angle to said line along the bottom of the basin. When the angle is acute a pocket-like space is obtained closest to the elastic. The encompassing elastic 23 thus forms an upper edge of the basin 39, serving as a collection space for body-products, which is especially valuable for more severe cases of incontinence where the volumes may become fairly large. Faeces may be received in this space without risk of passing outside the collection area of the diaper. The absorbent body 12, especially the part of it located within the elastic 23, has the task of absorbing liquid, while the purpose of the basin walls is to prevent leakage of liquid outside the diaper, before the absorbent body 12 has been able to completely absorb the total liquid volume. The raised edge portions 19 also retain liquid which is not immediately absorbed by the absorbent body 12 because of the position of the diaper, for example when the wearer is lying sideways. As soon as the wearer changes body position the liquid can be absorbed by the absorbent body.

The longitudinal section in Figs. 4 and 5 and the cross section in Fig. 6 illustrate the shaping influence of the elastic, which will be explained more closely. The shaping action of the elastic arises since the elastic is

contracting and thus strives to reduce its length. By means of the anchoring of the elastic to the cover, the cover is brought into the contracting movement of the elastic. The cover layers are connected in their turn to the absorbent
5 body across their surfaces, whereby tensile forces in the plane of the cover layers are transferred to the absorbent body. Since the elastic across the main part of its extension across the absorbent body has been applied in a curved shape, the contracting action makes the elastic
10 apply a force component 40, 41 in each point across the curved portion, see Figs. 1 and 4, said force component being directed towards the relevant centre of curvature for each point of the curved portion. If the curved portions have different radii of curvature, separate centres of
15 curvature exist for each separate point. The absorbent body 12 of the diaper, however, exhibits a certain compression resistance, which is illustrated in Fig. 4 by means of reactive force components 42, 43 which thus counteract the contracting forces 40, 41 of the elastic. The resistance to
20 compression is greater than the resistance to deformation transversely to the plane of symmetry 44 of the disc-shaped absorbent body, i.e. transversely to the force direction 42, 43 in the plane of the paper. This is particularly the case in the transition to the stiffer central portion 16.
25 The absorbent body is, as mentioned above, stiffer inside the curved elastic portions than the rest of the absorbent body and is therefore more easily deformed in the regions around and outside the elastic than in the stiffer central portion 16. The absorbent body 12 suitably consists of so-called cellulose fluff pulp and, together with the cover
30 11, is relatively pliable, but exhibits a certain resistance to compression, particularly in the stiffer central portion 16. These properties cause the torsional moments caused by the force pairs 41, 43 and 40, 42, respectively, to bring about a deformation of the article
35 in regions with arcuate elastic, which deformation is

symbolised by the arc lines 48, 49, 50, 51 which schematically represent the local direction of bending. Due to the location of the elastic outside of the plane of symmetry 44, a bending moment on the absorbent body 12 arises already in a flat condition. The article, however, has such a degree of stiffness that it is not deformed in a flat condition; this deformation is not initiated until the article is handled.

Fig. 5 illustrates the basin formed by the elastic, which is limited by the, in relation to the plane of the article, essentially perpendicular basin walls 39' along the arcuate elastic and also the basin walls 39'' which have been formed by portions of the cover extending outside the absorbent body.

These portions are raised by means of the action of the edge elastic 34, 35 in combination with the arcuate elastic.

The cross section according to Fig. 6 shows that the basin is comparatively deep and therefore is able to retain large amounts of excreta.

In the embodiments shown in Figs. 1-6, the elastic as a whole forms a closed loop in each ready-made diaper.

Fig. 7 schematically shows an embodiment of the diaper where the elastic extends transversely across the crotch portion 20 with a curved elastic portion 60, forming the demarcating transverse wall 61. In this case a demarcation is obtained between the rear portion 21 and the front portion 22 of the diaper, whereby faeces and urine are separated and a larger volume is provided for the collection space for faeces.

Fig. 8 shows a further variant, in which the rear portion 21 and the front portion 22 each have a basin-like space 66, 67 with transverse basin rims 68-71 inside each curved portion, which space is formed by two curved elastic portions 62, 63, 64, 65.

Fig. 9 shows an alternative design, in which the main form of the article in a flat condition may be essentially rectangular. An hourglass-shape with a tapering crotch portion 20 is obtained by the contracting action of the elastic. Also in this case, transverse basin rims 72, 73 are formed, providing an effective barrier against edge leakage.

The article in the embodiment according to Fig. 10 has an asymmetrical hourglass-like shape with a front portion 74, a rear portion 75 and a crotch portion 76 therebetween. The absorbent body consists of an hourglass-like lower layer 77, applied closest to the liquid-impermeable outer layer, preferably of chemical cellulose fluff pulp, and of an essentially ellipse-shaped upper absorbent layer 79, applied closest to the liquid-permeable inner layer 78, extending across the crotch region of the article and constituted of a material which is porous and resilient and has the ability to rapidly receive and let through liquid to the underlying absorbent layer 77. Examples of suitable materials for the upper absorbent layer are mechanical cellulose fluff pulp or a fibre wadding.

The upper, essentially ellipse-shaped absorbent layer 79 has side portions 82, 83 which extend laterally outside the lower hourglass-like layer and form pliable side portions 82, 83. In the crotch region the article is compressed in a pattern, formed by compression tracks arranged in the shape of three elongate, closed loops 84, 85, 86. The compression pattern is applied through the inner layer, the

upper absorbent layer and deep down into the lower absorbent layer. In the portion 87 of the compression pattern the article is substantially stiffened by the compression tracks and this portion becomes stiffer than the rest of the article. Elastic threads 88, 89, 90 are applied under pre-stress around the stiffer portion with two threads 88, 89 extending in an arcuate path from one side of the article inwards across the front portion to the opposite side of the article and with an elastic thread 90 extending in a corresponding fashion across the rear portion. The curved elastic portions 88', 89', 90' affect the article in a similar way as described in connection to the earlier described embodiments for the formation of the basin wall along the curved elastic portions. The pliable side portions 82, 83 are raised by the elastic threads, when the article is used, and form barriers for leakage prevention in a lateral direction of the product.

Fig. 11 shows an embodiment where a lower hourglass-like absorbent layer 91 is profiled with different thickness in different portions. In the crotch area of the article, the lower absorbent layer has two side portions 92, 93, differing from the hourglass-like shape, which side portions project laterally and are thinner and more pliable than the rest of the hourglass-like absorbent layer in the crotch portion of the product. When the product is used, the pliable side portions 92, 93 are raised by the elastic threads 94, 95 and 96, which surround a stiffer portion 97, in relation to the rest of the product. The embodiment according to Fig. 11 includes an essentially rectangular upper layer 98 of mechanical fluff pulp or of fibre wadding. As in earlier described embodiments, basin walls are formed along the curved elastic portions.

Fig. 12 shows a further embodiment. The article has a cover consisting of an inner layer and an outer layer. The

absorbent body 99 consists of one single layer of cellulose fluff pulp. The product is provided with a compression pattern, formed by a number of compression tracks 100, which increase the stiffness of the absorbent layer in this portion. The stiffer portion is encompassed by a number of elastic threads 101, 102, 103, which have curved portions for the formation of basin walls when the article is used. Two through-recesses 104, 105 are arranged in the crotch region of the absorbent body on both sides of the stiffened portion. The recesses 104, 105 form folding guides for the laterally, outside the recesses, located outer portions 106, 107 of the absorbent body. When the article is used it is folded along the recesses so that the outer portions 106, 107 of the absorbent body form side leakage guards.

The invention is not limited to the embodiments described above and shown in the drawings but may be varied within the scope of the attached claims. Other articles than incontinence diapers may be of current interest, such as baby diapers, training pants, sanitary napkins or the like. The notion "essentially continuously curved portion" primarily relates to an arcuate or an arcuately curved portion, but also includes a combination of a plurality of rectilinear portions, preferably at least three rectilinear portions as a substitute for a semi-arc or the like.

5

CLAIMS:

1. Disposable liquid-absorbent article, such as a
10 diaper (10), an incontinence guard, a sanitary napkin or
the like, having an essentially elongate shape and
comprising an absorbent body (12) with an inner side (13)
facing the body of the wearer and an outer side (14) facing
15 outwards and a cover (11) enclosing the absorbent body with
a liquid-permeable inner layer (17) against the inside of
the absorbent body and an outer layer (18) against the
outside of the absorbent body and contracting elastic
members (23) in connection with at least one layer in order
20 to impart to the article its shape, when in use,
characterized in that at least the cover layer on which the
elastic members are applied is connected to the inside and
the outside, respectively, of the absorbent body, in that
said elastic member (23) extends with at least one
25 essentially continuously curved portion (24, 25) across at
least one region of the absorbent body (11) and in that
said elastic member, through striving to contract and
through its connection to any one of said layers (17, 18),
exerts a tensile force on said layer in a direction towards
30 the centre of curvature of the elastic member, whereby said
force is transferred to and absorbed by the absorbent body,
in that the absorbent body is constituted of a material
which makes it pliable but at the same time, at least to a
great extent, resistant to compression against tensile
35 forces towards the centre of curvature of the curved
elastic portion, in that the elastic members are applied
with such a pre-stressing that when bending of the article

is initiated by the user, said tensile forces caused by the pre-stressing and the radius of curvature, deform the article to form, in relation to the plane of the article, a transversal basin wall along the curved elastic portions, and in that the article on that side of at least one curved portion of an elastic member against which said tensile forces act is designed with a stiffer portion than on the other side of said curved portion.

2. Article as claimed in claim 1, characterized in that the stiffer portion has been achieved by means of compression of the absorbent body in said portion (87), (Fig. 10).

3. Article as claimed in claim 2, characterized in that the compression has been carried out in a pattern.

4. Article as claimed in claim 3, characterized in that the compression pattern is constituted of at least one compressed track, extending along a closed elongate loop (84, 85, 86), (Fig. 10).

5. Article as claimed in any one of the claims 2-4, characterized in that the absorbent body consists of at least two layers (77, 79) and in that the compression has occurred in at least one of said layers.

6. Article as claimed in claim 5, which as a whole has an asymmetrical hourglass-like shape with a narrow crotch portion (76) and wider front and rear portions (74, 75 respectively), whereby the crotch portion, when the article is in use, is applied in the crotch of the user and whereby the front and the rear portion bear on the corresponding parts of the user, characterized in that one of the absorbent layers (77) has

an asymmetrical hourglass-like shape with its narrowest portion essentially directly in front of the crotch portion (7) of the article, in that on top of said portion and closest to the liquid-impermeable inner layer (78) an upper
5 absorbent layer (79) is applied which extends at least across the crotch portion (76) of the article but is shorter in the longitudinal direction than the hourglass-like lower absorbent layer (77) and which is constituted of
10 a material which is porous and resilient and has the ability to rapidly receive and let through liquid to the underlying absorbent layer.

7. Article as claimed in claim 6,
characterized in that the upper absorbent layer in the
15 crotch portion (76) of the article has side portions (80, 81), which extend laterally outside the lower hourglass-like layer and form easily foldable side portions, which are raised by the elastic members (88, 89, 90) (Fig. 10)
20 for the formation of leakage barriers.

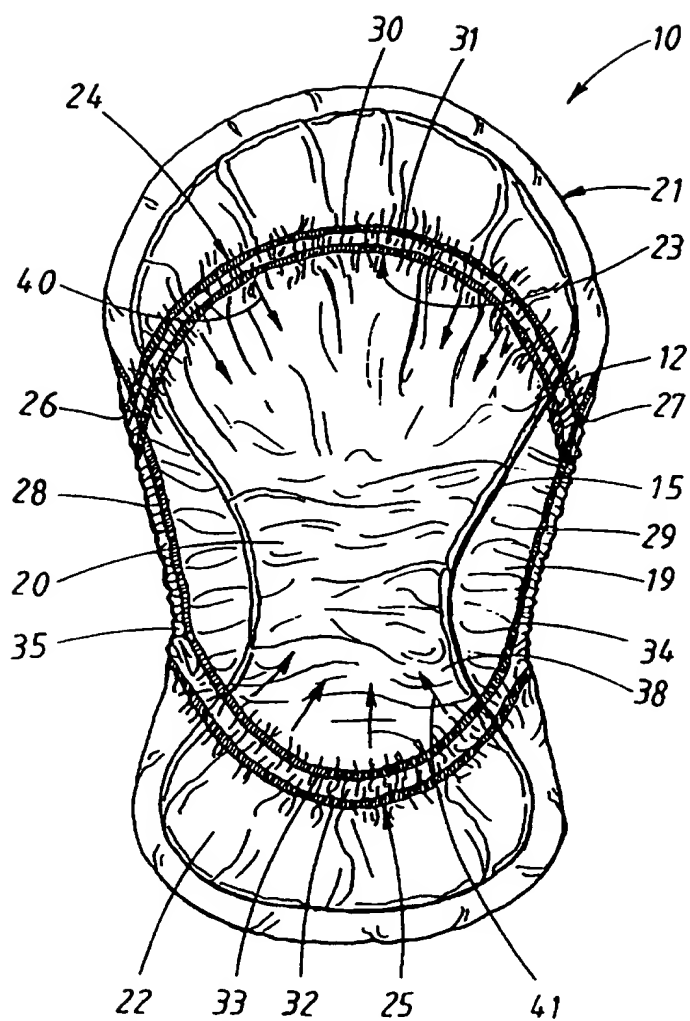
8. Article as claimed in claim 6,
characterized in that the lower hourglass-like layer (91)
(Fig. 11) is profiled with different thickness in different
portions, at least so the layer in the crotch portion of
25 the article has side portions (92, 93) deviating from the hourglass-like shape, which project laterally and are thinner and more pliable than at least the rest of the hourglass-like absorbent layer in the crotch portion of the
product and that said side portions are raised by the
30 elastic members (94, 95, 96) for the formation of leakage barriers.

9. Article as claimed in any one of the preceding
claims,
35 characterized in that the absorbent body has elongate recesses (104, 105) on both sides of the stiffer portion,

which recesses preferably are through-recesses and form folding guides for the outer portions (106, 107) of the absorbent body located laterally outside the recesses, so that the article, when in use, can be folded along said recesses for the formation of side-leakage protection of said outer portions (106, 107).

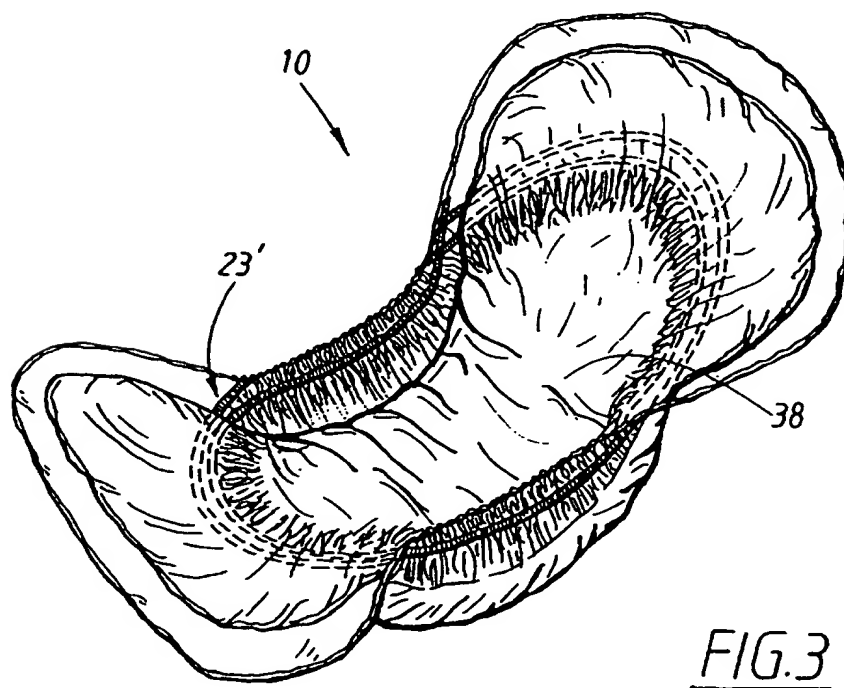
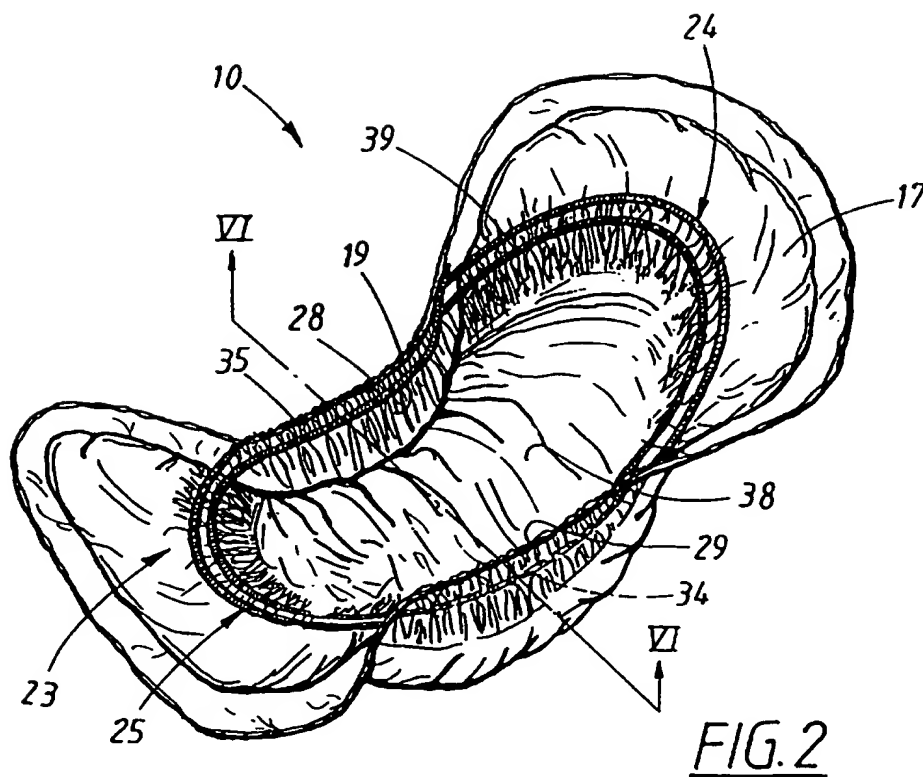
10. Article as claimed in claim 1, characterized in that the stiffer portion is achieved by means of the absorbent body being designed thicker in said portion or by means of the absorbent body in said portion having an additional layer of the same or of another material.

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FIG. 1

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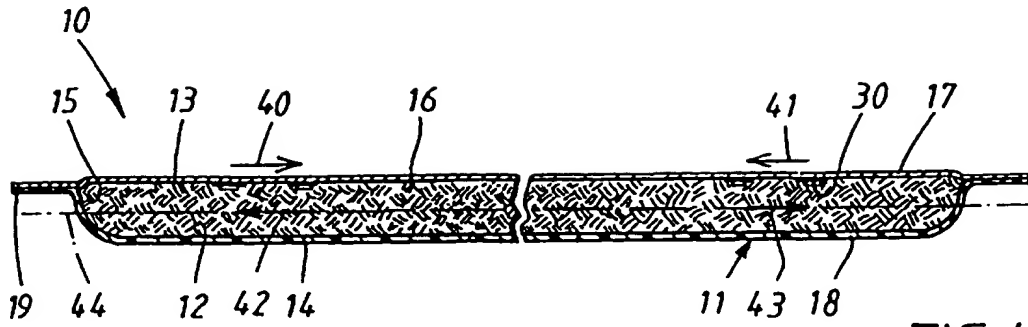


FIG. 4

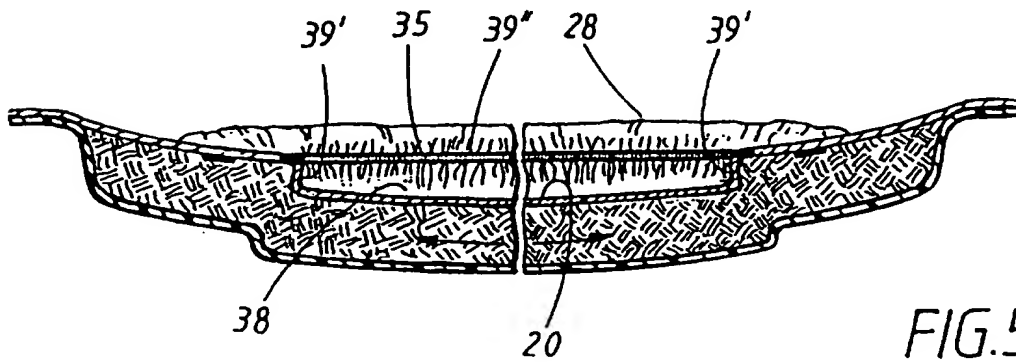


FIG. 5

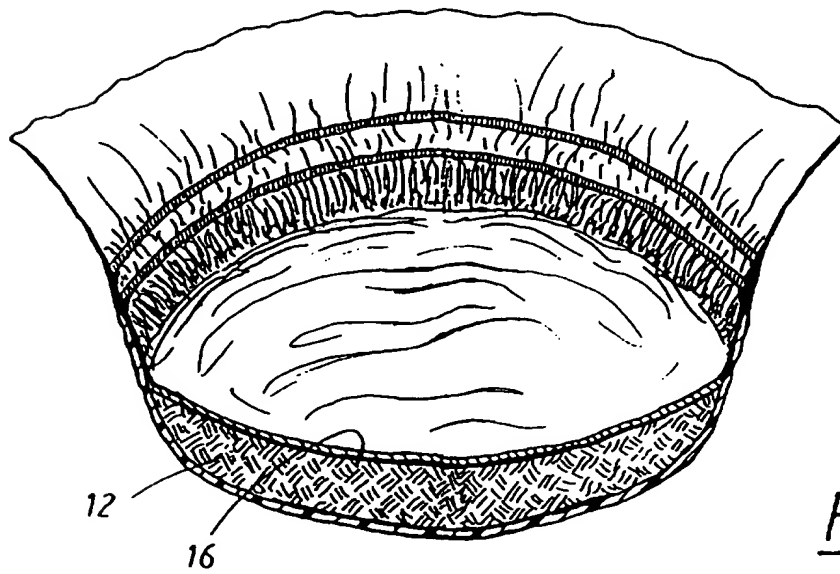


FIG. 6

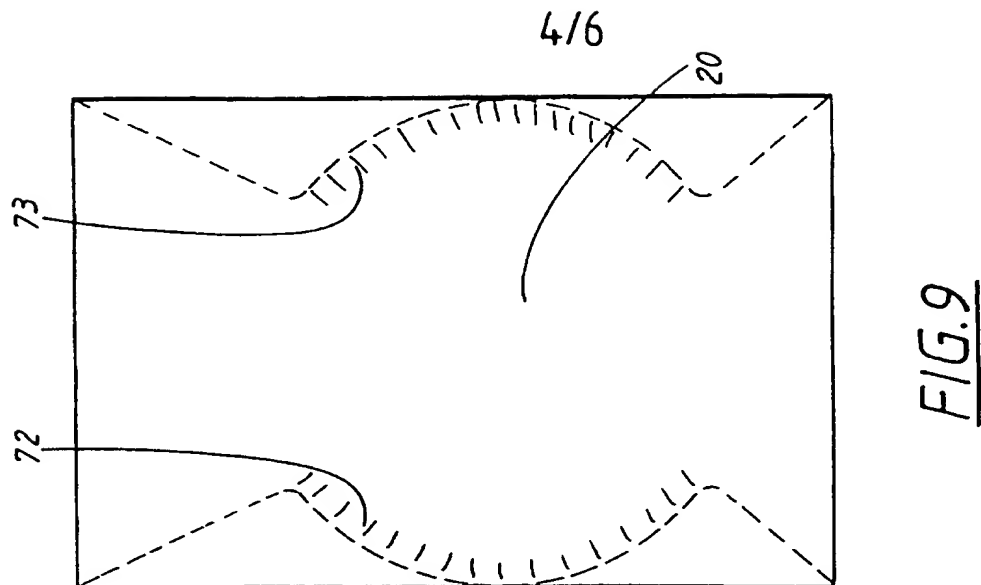


FIG. 9

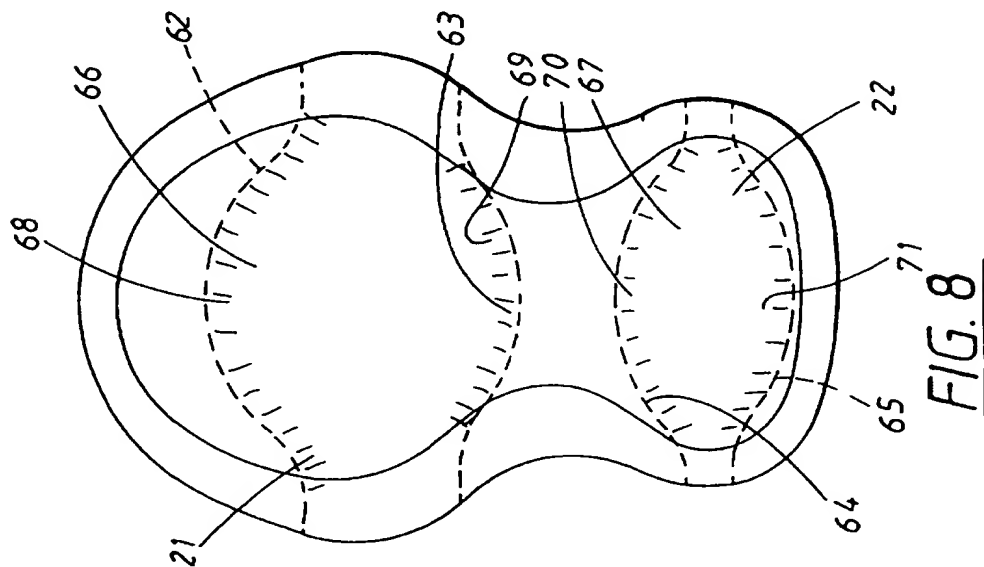


FIG. 8

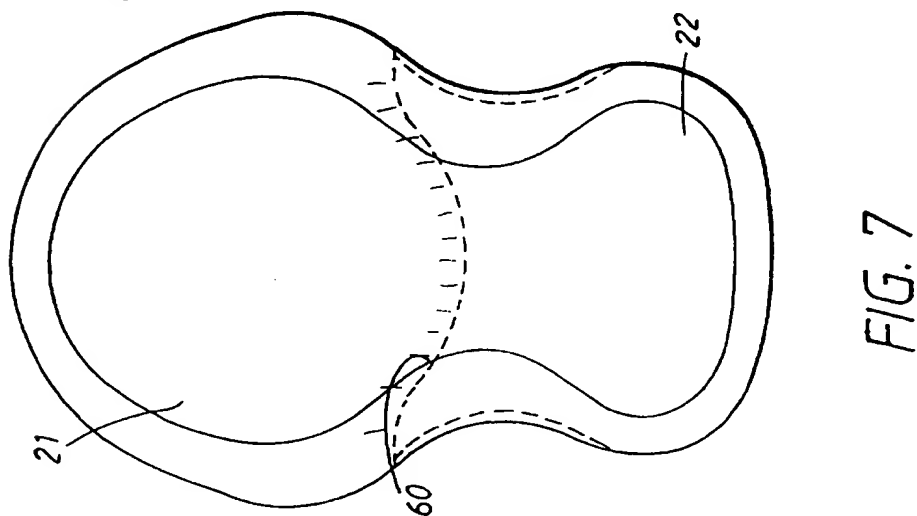


FIG. 7

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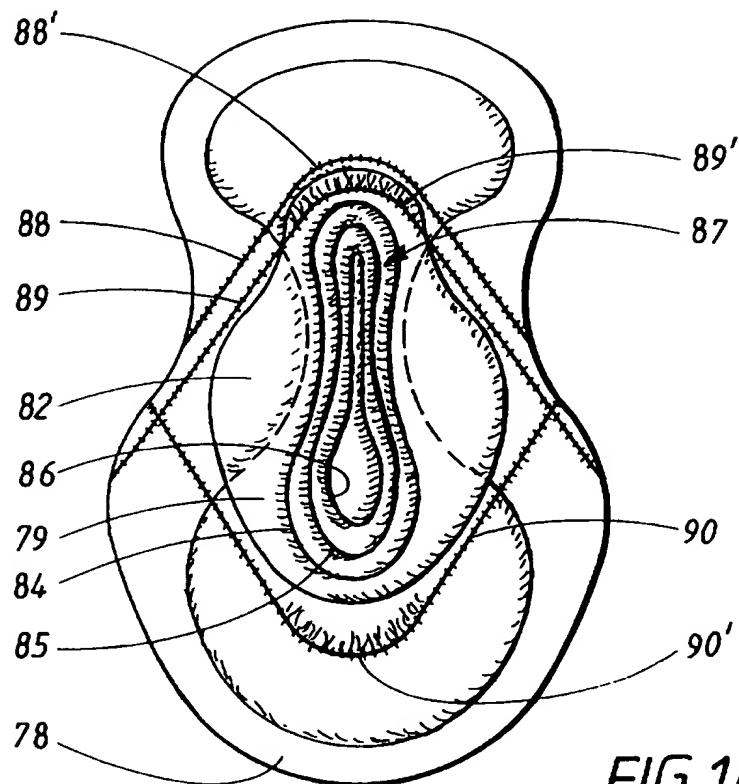


FIG. 10

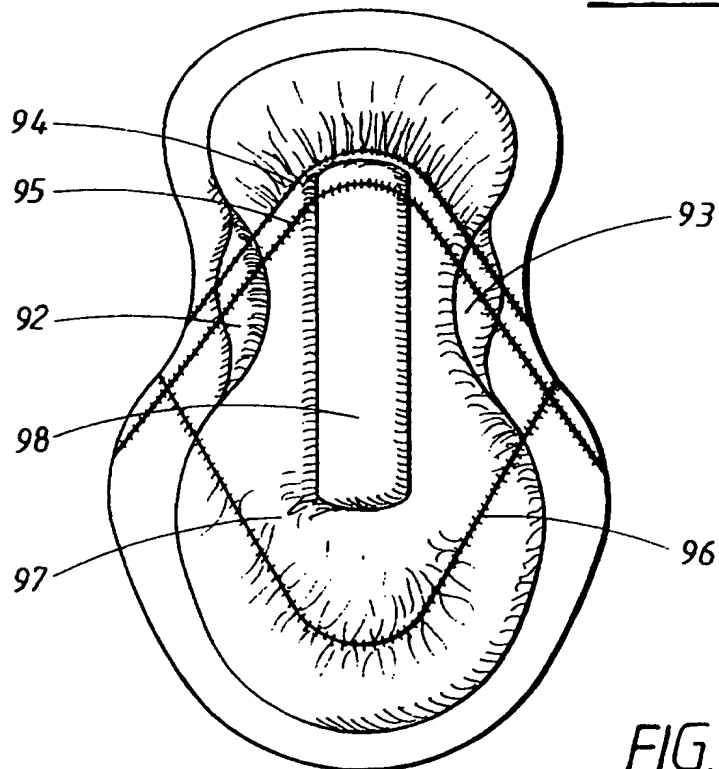


FIG. 11

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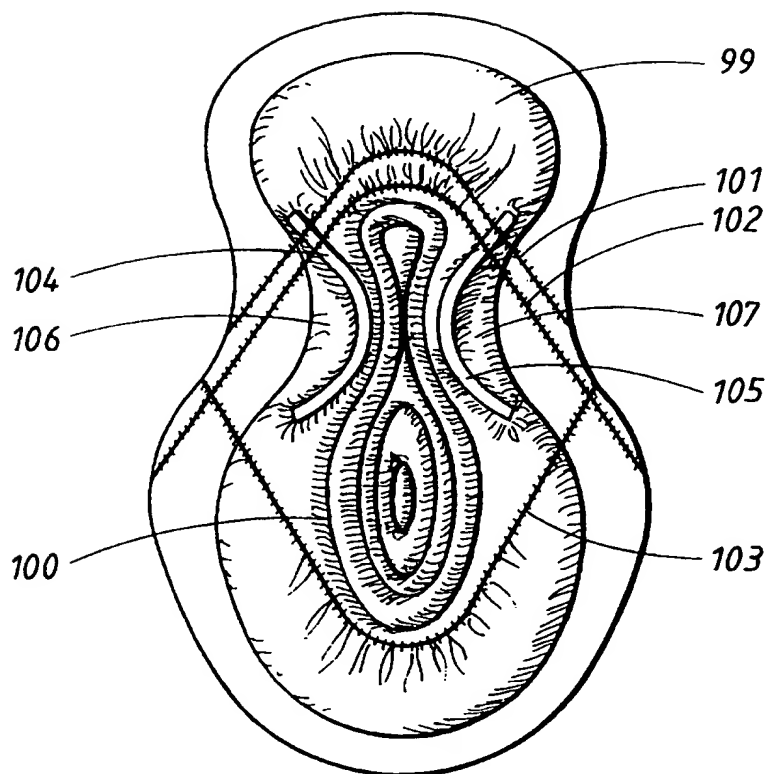


FIG. 12

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 96/01468

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: A61F 13/15

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0626160 A1 (JAPAN ABSORBENT TECHNOLOGY INSTITUTE), 30 November 1994 (30.11.94) --	1-10
P	WO 9531162 A1 (MÖLNLYCKE AB), 23 November 1995 (23.11.95) -- -----	1-10



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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Date of the actual completion of the international search

14 February 1997

Date of mailing of the international search report

28-02-1997

Name and mailing address of the ISA/
Swedish Patent Office
Box 5055, S-102 42 STOCKHOLM
Facsimile No. +46 8 666 02 86

Authorized officer

Ingrid Falk
Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT
Information on patent family members

28/10/96

International application No.
PCT/SE 96/01468

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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WO-A1- 9531162	23/11/95	AU-A- 2542195 GB-A- 2289419 GB-D- 9509785 IL-D- 113654 NO-D- 964869 SE-C- 502818 SE-A- 9401680 ZA-A- 9503704	05/12/95 22/11/95 00/00/00 00/00/00 00/00/00 22/01/96 17/11/95 09/04/96